

OUTCOMES

from the Rio Grande Basin Initiative

April 2008, Vol. 7, No. 1



In this issue

Award Winners

RGBI wins TCEQ Environmental Excellence Award

2

Agricultural Economics students win first prize in AgriLife Conference poster competition

2

Economist recognized for outstanding modeling efforts

3

Extension specialist recognized for outstanding education programs

5

Scientist awarded for irrigation, mulching and vegetable research

7

Big Nut in New Mexico

Pecan production and water use information collected by satellite

4

Changing Names

Two Texas agriculture agencies reposition themselves

6

Faces of RGBI

Nutrient management education team

7

For more RGBI information, please visit:

<http://riogrande.tamu.edu>



Award Winners

RGBI wins TCEQ Environmental Excellence Award

The Rio Grande Basin Initiative (RGBI) project was recently selected as the first place winner of the Texas Commission on Environmental Quality's (TCEQ) 2008 *Texas Environmental Excellence Award* (TEEA) in the agriculture category.

The TEEA celebrates the efforts of citizens, communities, businesses and organizations to preserve and protect the Texas environment. The awards spotlight the state's highest achievements in environmental preservation and protection.

"This is a very prestigious award, and we are all highly honored to have won," said B.L. Harris, Texas Water Resources Institute associate director and RGBI project director. "Both Texas and New Mexico participants have done a great job in earning this award."

Agricultural Economics students win first prize in poster competition

Several Rio Grande Basin Initiative students were awarded at the annual Texas A&M AgriLife Conference undergraduate and graduate student poster competition for their outstanding research poster presentations during the January 7-10, 2008 conference.

Emily Seawright received first place in the Undergraduate Student Poster Competition as lead author for research on the economics of using biological control on an invasive, aquatic weed that consumes large quantities of scarce water in the Rio Grande Basin. Co-authors of this poster include Dr. Ed Rister, Dr. Ron Lacewell, Allen Sturdivant and Dr. John Goolsby. Seawright is from Stephenville, Texas, and is the daughter of Jimmy and Gaye Lynn Seawright of Valley Mills, Texas. She graduated from the Department of Agricultural Economics in December 2007 and began a Master of Science in agricultural economics at Texas A&M University in



Award winning agricultural economics students include (left to right) Chris Boyer, Shauna Yow, Emily Seawright, Callie Rogers and Andrew Leidner.

January 2008. In addition to support from the RGBI, Seawright will continue researching the economics of *Arundo donax* with an assistantship funded by the U.S. Department of Agriculture's Agricultural Research Service at Weslaco.

Andrew Leidner received first place in the Graduate Student Poster Competition as lead author for his poster titled "Economic Implications of Conventional Water Treatment Versus Desalination: A Dual Case Study." Callie Rogers was a major contributing co-author of this poster, along with Allen Sturdivant, Dr. Ed Rister, Dr. Ron Lacewell, Javier Santiago, Bill Norris, Jesus Leal, Jose Garza and Judy Adams. Leidner is from Tifton, Georgia, and is the son of John and Mary Leidner of Tifton, Georgia. Rogers is from Weatherford, Texas, and is the daughter of David and Shelly Rogers. Both students are working on their Master of Science degree at Texas A&M University in the Department of Agricultural Economics and will continue their research on water treatment economics with the support of RGBI.

In addition, Shauna Yow's poster on "Water Market Distortions Created by Legislation" drew the attention of Texas Rep. Dan Gattis during the conference and has increased the visibility of student research within the Texas Legislature. The work by all students at Texas A&M University is relevant and significant, but to be acknowledged by a state representative is a special honor. Yow's research will

be submitted to the Texas Legislative Committee on Natural Resources during 2008. Yow is from Seguin, Texas, and is the daughter of Sherry and Jess Jenkins of Seguin, Texas, and Clynt and Janie Yow of Poteet, Texas. She is currently a junior in the Department of Agricultural Economics and expects to graduate in May 2009. She is part of Texas A&M's Undergraduate Research Scholars Program, and her research is also supported by RGBI and the Bush School Travel Grant program. Yow's faculty advisors are Drs. Ed Rister, Ron Lacewell and Fred Boadu.

Chris Boyer is another graduate student who has contributed to the agricultural economics efforts. He is currently conducting two analyses on two water plant facilities - a freshwater treatment plant and a desalination plant. Boyer is also looking at other analyses on the economics of water facilities going from small to large scale.

These students have made numerous poster presentations at various conferences and meetings throughout the state and beyond. To see their posters, please visit <http://riogrande.tamu.edu/resources.php>.

Economist recognized for outstanding modeling efforts

Allen Sturdivant, Texas AgriLife Extension Service associate, received two awards at the Texas A&M AgriLife Conference held January 7-10, 2008 for his exceptional performance in working with stakeholders and in creating and applying economic models that are instrumental in addressing rural and urban water use issues in South Texas.

Sturdivant received both the Vice Chancellor's Award in Excellence for Technical/Extension Support (off campus) and the Superior Service Award in the Extension Associate/Assistant/Technical category.

"Allen's accomplishments in South Texas since 2002 as part of the Texas AgriLife Research and Texas AgriLife Extension Service economics team have been many and of great importance to the community, region and state," said Dr. Edward Rister, associate head in the Department of Agricultural Economics. "Allen's talents have made a highly positive impact

on South Texas and the water community, where he continues to demonstrate superior work."

As part of the Rio Grande Basin Initiative (RGBI) team, Sturdivant has helped develop key economic models such as the Rio Grande Irrigation District Economics spreadsheet model (RGIDECON), the DESAL ECONOMICS model, and the CITY H2O model. In addition, his Valley Irrigation District Rate Analyzer (VIDRA) has led to increased financial stability for several irrigation districts that were struggling to survive. His contributions continued where he played a key role in estimating the economic benefits of the El Morillo Drain, which reduces the salt load to the Rio Grande and saves South Texas farms and cities between \$42 million and \$56 million annually. He was also a point person for a study of the economic impacts that would be expected with flooding from the Rio Grande due to overflow of the levee system.

Irrigation district managers agree that Sturdivant has been a tremendous asset and through his work helped them realize approval and construction of their conservation projects. Through the development and use of his spreadsheet models, he has provided them with a planning tool of invaluable service.

"Because of his professionalism and high quality of work, Allen has earned the respect of agricultural

Continued - see Awards on page 5

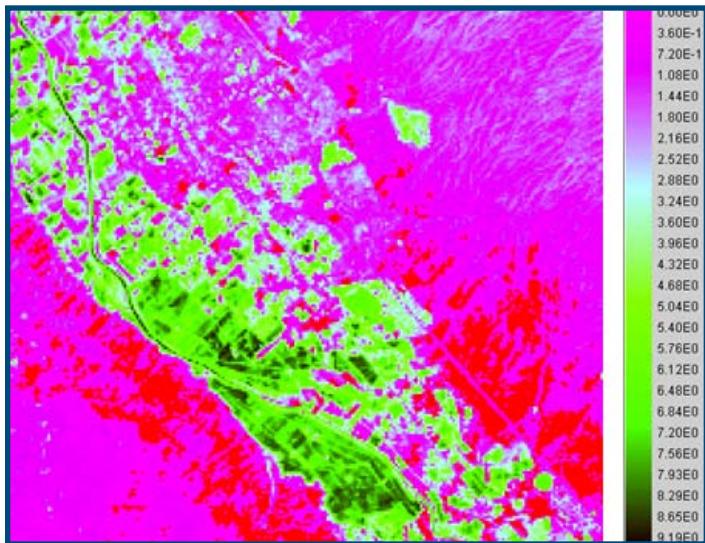


Allen Sturdivant (center) with Dr. Ed Smith (left), director of Texas AgriLife Extension Service, and Dr. Mark Hussey (right), director of Texas AgriLife Research, after receiving the Vice Chancellor's Award in Excellence for Technical/Extension Support (off campus).

Big Nut in New Mexico

Pecan production and water use information collected by satellite

By Leeann DeMouche



Pecan production in New Mexico is a big business, where annual cash receipts have been anywhere from \$85 million to more than \$100 million annually (U.S. Department of Agriculture-National Agricultural Statistics Service), causing a growing interest in increased pecan acreage. Acreage for pecan production in the 2002 USDA Census shows New Mexico at 38,000 acres, where 6 percent of that acreage is considered to be non-baring or open canopy. Researchers at New Mexico State University (NMSU) are working to help pecan growers of open-canopy orchards earn more money while protecting their trees from water stress.

Seasonally, pecan consumptive water use is high compared to most crops and is estimated at 52 inches for mature trees. Thus, farmers need to maximize irrigation water use efficiency. Consumptive water use of pecans is a combination of evaporation from the soil and transpiration through the leaves. Researchers in the Plant and Environmental Sciences Department at NMSU are using a camera attached to a 4-foot diameter remote control balloon to collect the area of pecan canopy. The canopy area is then calculated using Photoshop software that identifies all areas with a green cover. A second method to collect

canopy is to obtain high resolution satellite images taken by the Quickbird-2 satellite from Digital Globe Corporation and again use Photoshop to calculate the project cover. These two processes can occur simultaneously and are usually measured together as evapotranspiration (ET).

Weather conditions from weather stations can also be used to reference potential ET of a crop (well-watered grass or alfalfa), ETr. The ETr is then multiplied by a crop coefficient (K_c) scaling factor to obtain crop ET (ETc) under standard conditions. Standard conditions are defined as large fields under optimum soil water, excellent management and environmental conditions that allow the crop to achieve full production under the given climatic conditions.

The effect of tree age and spacing is manifested in the amount of canopy cover. Consequently, when pecan trees are young, the water use is proportional to the amount of solar radiation intercepted by the canopy. The water use at closed canopy ($E_t = K_c E_{Tr}$) can be



Top left photo: An evapotranspiration (ET) map on June 8, 2005, at Las Cruces estimated from remote sensing. The scale is ET in mm/day (10 mm/day is 0.4 inch/day).

Above: This picture of a pecan canopy was taken from a 4 foot diameter balloon.

scaled to the water use of an open canopy by the effective canopy cover (ECC) where ECC is defined as the proportion of the soil surface shaded by a crop at solar noon.

Researchers at NMSU have found that measurements of the canopy cover from satellite or balloon data can assist in the calculation of and the proper amount of water needed for irrigation of a small orchard.

Journal reference for this study: Wang, J. et. al., (2007). Crop coefficients of open-canopy pecan orchards. *Agricultural Water Management*, 88, 253-262.

Awards (continued from page 3)

producers, irrigation districts, municipalities, commodity associations and many others concerned about water," Rister said.

"Although this is an individual award, it is due to the team work approach that goes into all of these efforts," Sturdivant said.

The economics team receives support from the Texas Water Resources Institute, the Departments of Agricultural Economics, Biological and Agricultural Engineering, and other collaborators such as irrigation district managers, municipal water suppliers, state agencies, U.S. Bureau of Reclamation and many more.

"Without everyone's help, these efforts would not get done," Sturdivant said.

Extension specialist recognized for outstanding education programs

Dr. Bruce Lesikar, Texas AgriLife Extension specialist, professor and associate department head and Extension program leader for the Department of Biological and Agricultural Engineering, received the Vice Chancellor's Award in Excellence for Extension Education and Service Specialist. He was recognized for his nationally and internationally recognized expertise in water management and on-site wastewater treatment. His accomplishments are numerous and came as a result of his commitment to his profession, superior knowledge, productivity, communication and leader-

Researchers have observed that when an orchard has more than 78 percent cover, ET does not increase with increasing cover. Consequently, by combining many technologies together, irrigation scheduling for trees with incomplete cover is possible. The main problem is to get a realistic measurement of the canopy cover in midsummer at the time when the orchard has reached maximum cover.

ship skills and his dedication to Extension and his educational programs.

Lesikar wrote seven short-course manuals for continuing education programs for professionals. These courses are available through the Texas AgriLife Extension Service, the Texas On-Site Wastewater Association, and the National On-Site Wastewater Recycling Association. He also helped establish the Consortium of Institutes for Decentralized Wastewater Treatment to provide education on wastewater research.

One supporter said Dr. Lesikar "exemplifies what an Extension specialist should be and demonstrates a unique ability to creatively and effectively share his expertise."

Continued - see Awards on page 7



Bruce Lesikar (center) with Dr. Ed Smith (left), director of AgriLife Extension Service, and Dr. Mark Hussey (right), director of AgriLife Research, after receiving the Vice Chancellor's Award in Excellence for Extension Education and Service Specialist.

Changing Names

Two Texas agriculture agencies reposition themselves

Two agencies of The Texas A&M University System recently changed their names and logos to better reflect their missions and to reposition themselves in the marketplace.

As of January 2008, the Texas Agricultural Experiment Station is now Texas AgriLife Research and Texas Cooperative Extension is Texas AgriLife Extension Service.

In a news release announcing the changes, Dr. Mark Hussey, director of AgriLife Research, said, "We are making these changes to better communicate the life-sustaining and life-changing impacts that both AgriLife Research and AgriLife Extension deliver to the people of Texas and beyond." Hussey is also interim vice chancellor of agriculture for the A&M System and interim dean of the College of Agriculture and Life Sciences at Texas A&M University.

"But we also want to tell our story to a larger audience and a changing state population, attract new resources and build new partnerships, while strengthening our existing ones," Hussey said.

Texas A&M's new Director of Communications and Marketing Jason Cook, who previously was director of communications and marketing for Texas A&M AgriLife, said the changes were also made to better align the names with the teaching, research and extension missions of the agencies and the College of Agriculture and Life Sciences at Texas A&M. By changing the names, the agencies and college are more closely tied together, he said.

"It is a natural step to bring these three separate entities together under a family brand," Cook said.

The name changes are part of a re-branding initiative launching this year after two years of study and planning. These efforts were led by former vice chancellor Dr. Elsa Murano, who was named president of Texas A&M University on Jan. 3.

"The re-branding efforts are centered on one foundational message: 'Agriculture is Life!'" Hussey said. "The central idea is that life itself is the core value that our agencies seek to sustain and enhance."

"People usually don't realize how much we all depend on agriculture and the life sciences. Discoveries and innovations in these fields directly impact the quality of the food we eat, the clothes we wear, the air we breathe, the water we drink, the homes we live in, and, more and more, even the fuels we pump into our vehicles."

Dr. Ed Smith, director of AgriLife Extension, said, "These new brands will impact not only our marketing materials and signage, but also the way we position and prioritize our programs and work with our federal, state and county partners to serve the state of Texas. It is vitally important to tell our story and that people connect our agencies to the tremendous impacts they have on the state."

One of the drivers of the re-branding initiative was a market study that showed that the work of the research and extension agencies was not widely known across the state of Texas.

"We hope to help people better understand the vital role that agriculture and life sciences still play in improving the prosperity of their lives," said Smith. "We believe that if they come to know us better, they will see that connection more clearly, even within a state population that is now 85 percent urbanized."



Awards (continued from page 5)

Scientist awarded for irrigation, mulching and vegetable research

Dr. Daniel Leskovar, professor at Texas AgriLife Research and Extension Center at Uvalde and assistant director of the Vegetable and Fruit Improvement Center, received the Vice Chancellor's Award in Excellence for Research Individual (off campus). His research includes transplant and drip irrigation technology, plant stress management through adapted varieties, foods for health and disease prevention and plastic mulch technology. Leskovar has had an impact on Texas consumers and has improved the vegetable growers industry. One ongoing project, initiated in 2003, is a collaboration with Constanzo Farms, Texas AgriLife Extension in Bexar County and HEB food retailers to use plastic mulch and drip irrigation in pepper production for the HEB brand.



Dr. Daniel Leskovar (center) with Dr. Bill Dugas (left), deputy director of AgriLife Research, and Dr. Mark Hussey (right), director of AgriLife Research, after receiving the Vice Chancellor's Award in Excellence for Research Individual (off campus).

Faces of RGBI Nutrient management education team

by
Danielle Supercinski



The Nutrient Management Education in the Rio Grande Valley Team includes (left to right) Omar Montemayor, Brad Cowan, Dr. Enrique Perez, Dr. Tony Provin and Dr. Mark McFarland. The award was presented by Dr. Ed Smith, director of AgriLife Extension (far right).

The Nutrient Management Education in the Rio Grande Valley Team was formed in 2002 to help Valley producers reduce fertilizer use to increase their profitability and make the Arroyo Colorado Watershed and Rio Grande Basin healthy again. Results achieved so far through marketing, educational programs and free soil testing campaigns are remarkable: producers adopting these best soil management practices increased by 60 percent; actual fertilizer application was reduced by more than 2.6 million pounds of nitrogen and 3 million pounds of phosphorus; growers saved \$1.6 million or \$9.47 to \$27.07 an acre; and the watershed's water quality improved dramatically.

Team members are: Brad Cowan, county Extension agent (CEA)-agriculture and natural resources, Hidalgo County; Dr. Mark McFarland, professor and soil fertility specialist; Omar Montemayor, CEA-agriculture and natural resources, Starr County; Dr. Enrique Perez, CEA-agriculture and natural resources, Cameron County; and Dr. Tony Provin, associate professor and soil chemist. These gentlemen received the 2007 Superior Service Team Award for their outstanding educational programs that enable Rio Grande Valley producers to significantly reduce fertilizer use, helping them increase profits and productivity while enhancing water quality. This project is partially funded by the Rio Grande Basin Initiative and Texas Water Resources Institute.

Increasing Irrigation Efficiency in the Rio Grande Basin through Research and Education

Through education and research efforts, Texas AgriLife Research and the Texas AgriLife Extension Service and counterparts at New Mexico State University Agricultural Experiment Station and Cooperative Extension Service are implementing strategies for meeting present and future water demands in the Rio Grande Basin. These strategies expand the efficient use of available water and create new water supplies. This federally funded initiative is administered by the Texas Water Resources Institute and the New Mexico State University Water Task Force with funds from the Cooperative State Research, Education and Extension Service.

Rio Grande Basin Initiative Outcomes
April 2008, Vol. 7, No. 1

Bill Harris, Project Director,
Associate Director,
Texas Water Resources Institute

Craig Runyan, Project Director,
Water Quality Coordinator,
New Mexico State University Plant Sciences

Danielle Supercinski, Editor & Writer

Send comments or subscription requests to
Outcomes Editor, Texas Water Resources Institute,
1500 Research Parkway, Suite A240, 2118 TAMU,
College Station, Texas, 77843-2118.
Call (979) 845-1851 or e-mail riogrande@tamu.edu.

<http://riogrande.tamu.edu>

Special thanks to NMSU writer:
Leeann DeMouche, water resource specialist

This material is based upon work supported by the Cooperative State Research, Education and Extension Service, U.S. Department of Agriculture under Agreement No. 2005-34461-15661 and Agreement No. 2005-45049-03209.



Texas Water Resources Institute
1500 Research Parkway, Suite A240
2118 TAMU
College Station, Texas 77843-2118